Realizing the Benefits of Coalition Network Centric Operations

Presentation to
NDIA Event
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Information Age Transformation:
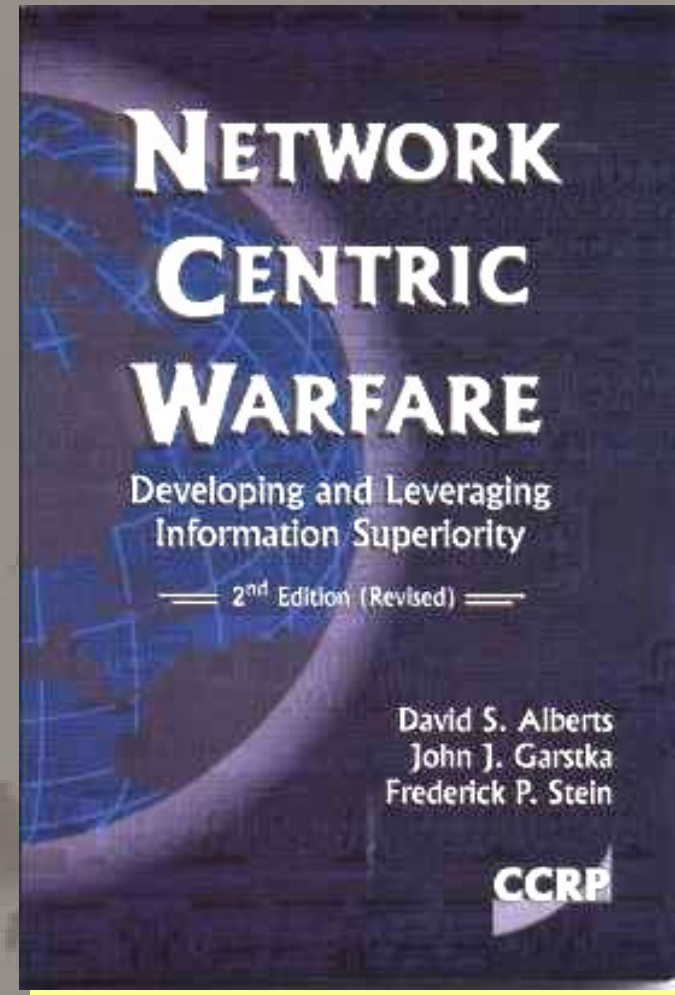## *Network Centric Warfare*

Translates an Information Advantage into a decisive Warfighting Advantage

Information Advantage - enabled by the robust networking of well informed geographically dispersed forces

Characterized by:

> **- Information sharing**
> **- Shared situational awareness**
> **- Knowledge of commander's intent**

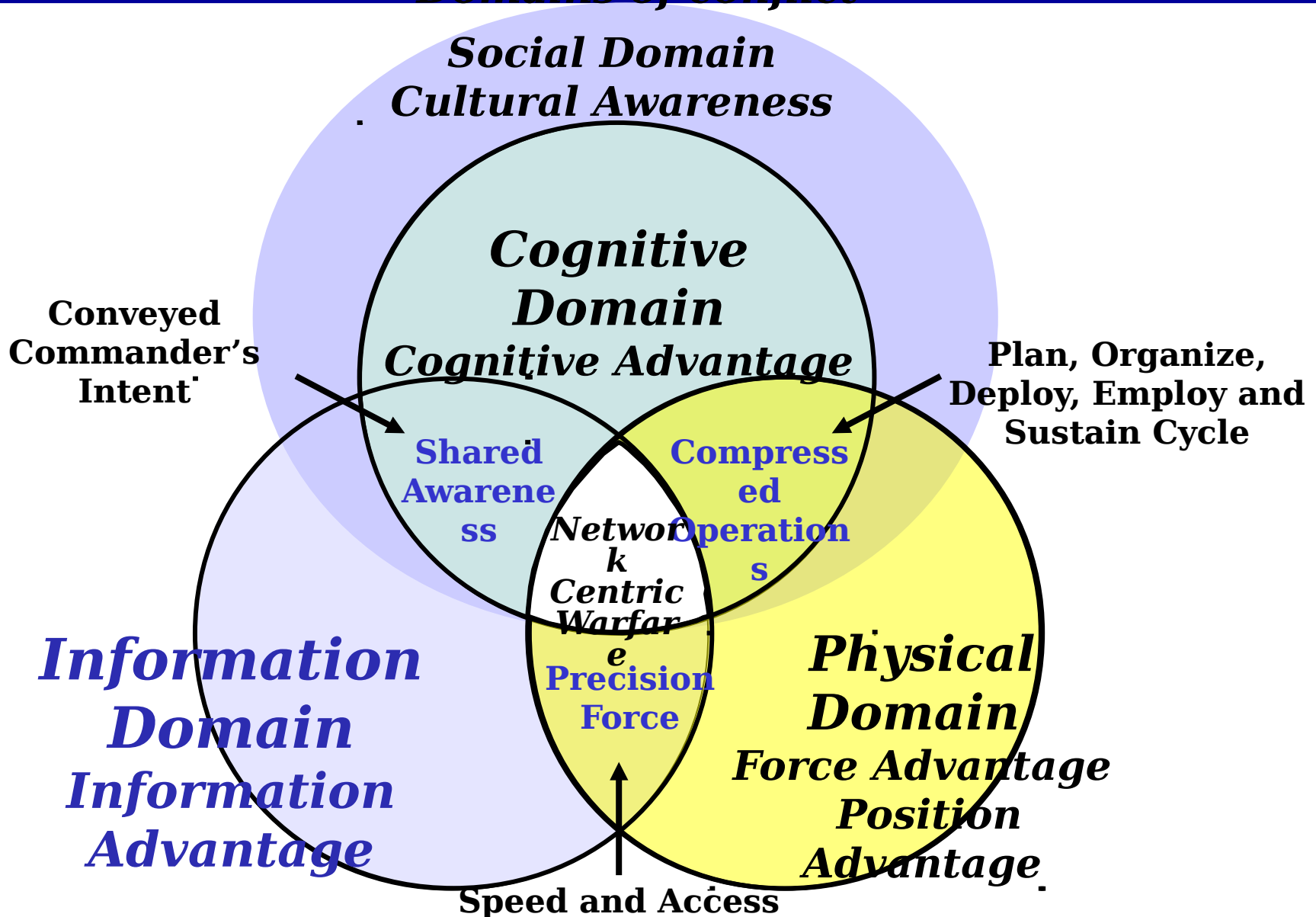**Warfighting Advantage - exploits behavioral change and new doctrine to enable:**

NETWORK CENTRIC WARFARE

Developing and Leveraging Information Superiority

═══ 2nd Edition (Revised) ═══

David S. Alberts
John J. Garstka
Frederick P. Stein

CCRP

*Exploits **Order of Magnitude** Improvement in*

Information-Age Warfare …

Domains of conflict

Social Domain
Cultural Awareness

Cognitive Domain
Cognitive Advantage

Conveyed Commander's Intent

Plan, Organize, Deploy, Employ and Sustain Cycle

Shared Awareness

Compressed Operations

Network Centric Warfare

Information Domain
Information Advantage

Precision Force

Physical Domain
Force Advantage
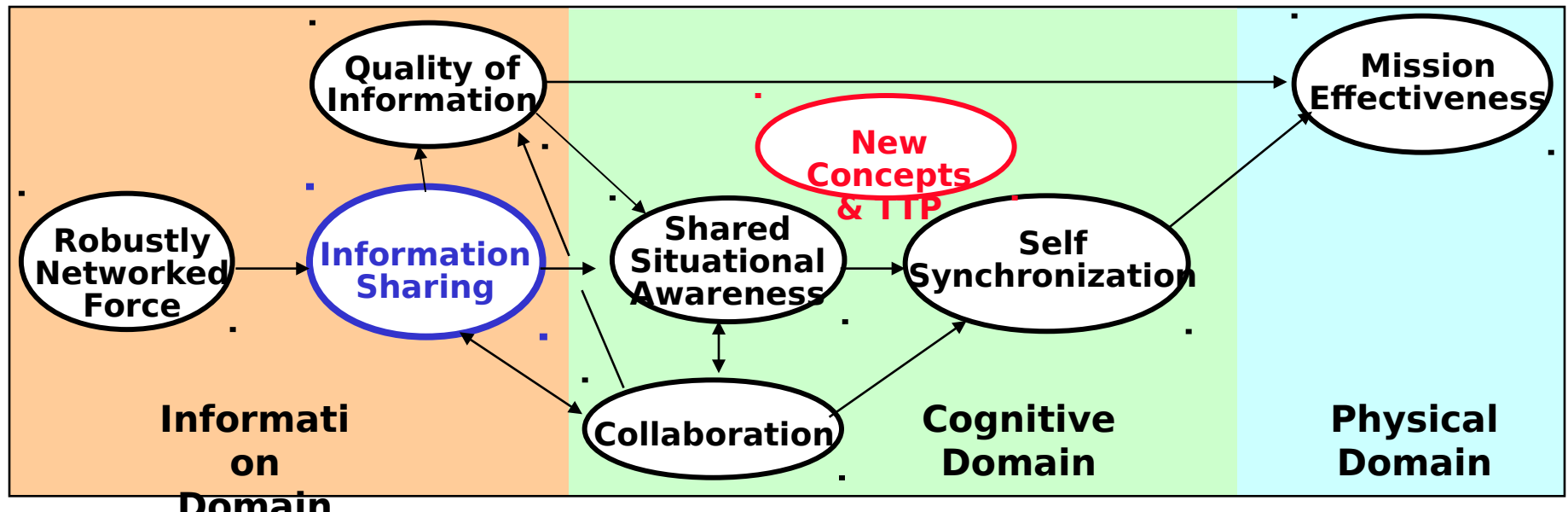**Position Advantage**

Speed and Access

Tenets of Network Centric Warfare

Tenets of NCW: A Hypothesis Regarding Sources of Power

- A robustly networked force improves information sharing
- Information sharing and collaboration enhances the quality of information and shared situational awareness
- Shared situational awareness enables collaboration and self synchronization, and enhances sustainability and speed of command
- These in turn dramatically increase mission effectiveness

DoD Report to Congress on Network Centric

Top Level Measures for Exploring NCW Hypothesis

Bottom Line

Networked Forces Outfight Non-Networked Forces

Warfighting Advantage: Evidence
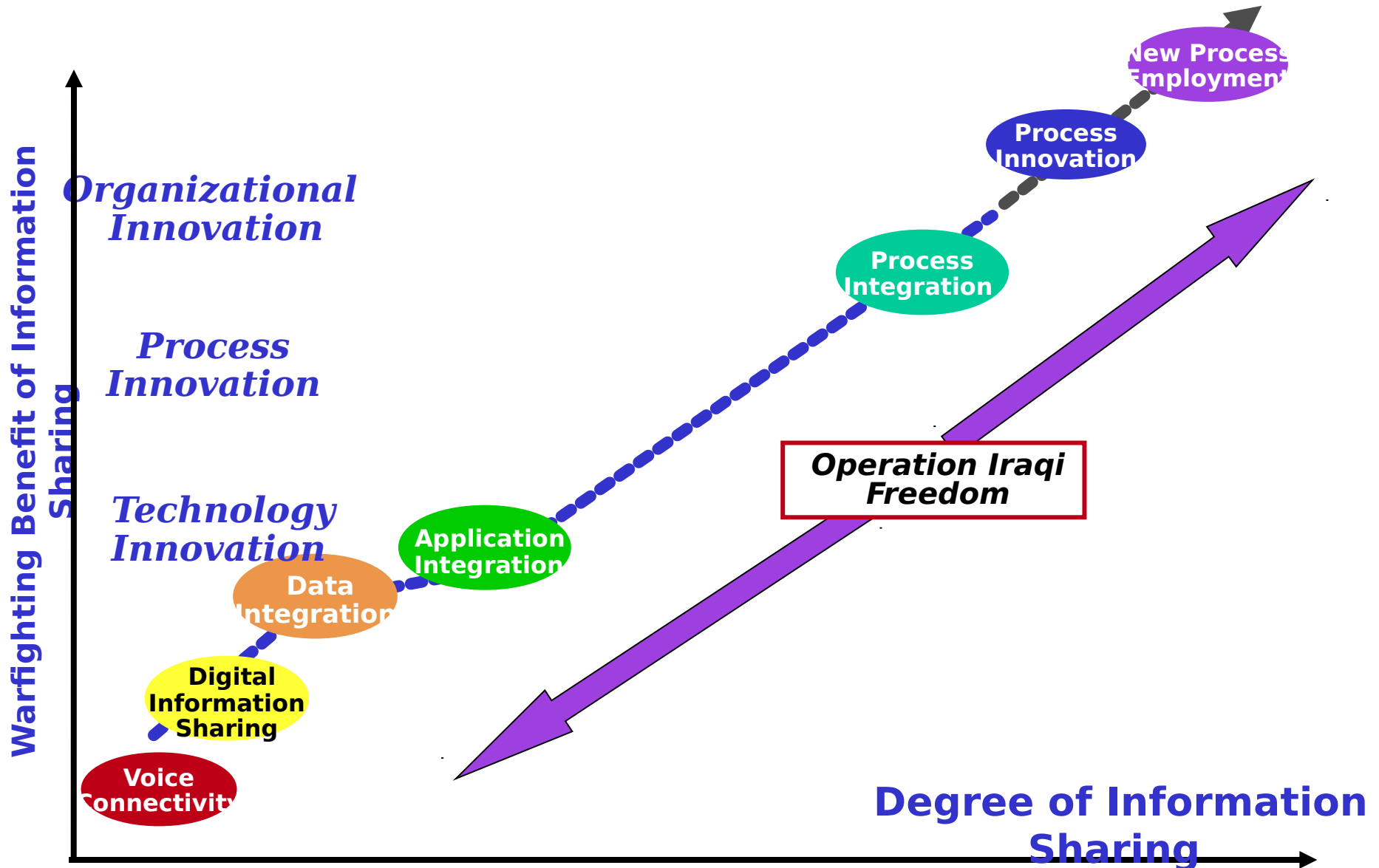
- **Precision Engagement – Networked Air and Ground Forces**
  - **Networked Air and Ground Forces decisively defeat OPFOR at night (USA Division Capstone Exercise - Phase I, Apr 2001)**
  - **Networked Air and Ground Forces decisively prosecute counter TBM mission (*Operation Iraqi Freedom – Western Iraq*)**
- **Full Dimensional Protection - Counter Air**
  - **USAF found F-15Cs, working with data links (shared awareness), increased kill ratio by over 100% -- 2.6:1 for both Day & Night Ops (JTIDS Operational Special Project - Mid 1990's)**
- **Dominant Maneuver**
  - **Networked coalition forces demonstrate unprecedented operational agility and speed of maneuver in defeating opposition forces (Operation Iraqi Freedom)**
  - **Networked Stryker Brigade decisively engages OPFOR at JRTC   -- 10 fold reduction in loss/exchange ratio form 10/1 to 1/1 (2003-2004)**

Implementing NCW

...Trajectory of Innovation and Experimentation

Warfighting Benefit of Information Sharing

Organizational Innovation

Process Innovation

Technology Innovation

New Process Employment

Process Innovation

Process Integration

Application Integration

Data Integration

Digital Information Sharing

Voice Connectivity

Operation Iraqi Freedom

Degree of Information Sharing

Concept of Operation:
Operation Iraqi Freedom (OIF)

Three Theaters:
Southern – Center of Gravity
West – Stop scuds, monitor movements
North – Economy of Force

OIF: Western Iraq: Integrated Air - Ground Ops

- **Controlled by Air Component Commander (ACC)**
- **Special Operation / Air Force focus**
- **Non-contiguous --- non-linear**

- **Robustly Networked Force**
    - **100% Air Craft Data Linked**
    - **Ground (BFT) to ACC to Aircraft**

OIF: Northern Iraq

• **Controlled by Land Component Commander (LCC)**

• **Special Operations, Light Forces , Airborne Drops and Indigenous Forces**

• **Seizer of Northern Oil Fields**

  - Non linear, air-to-ground

• **Non Doctrinal:**

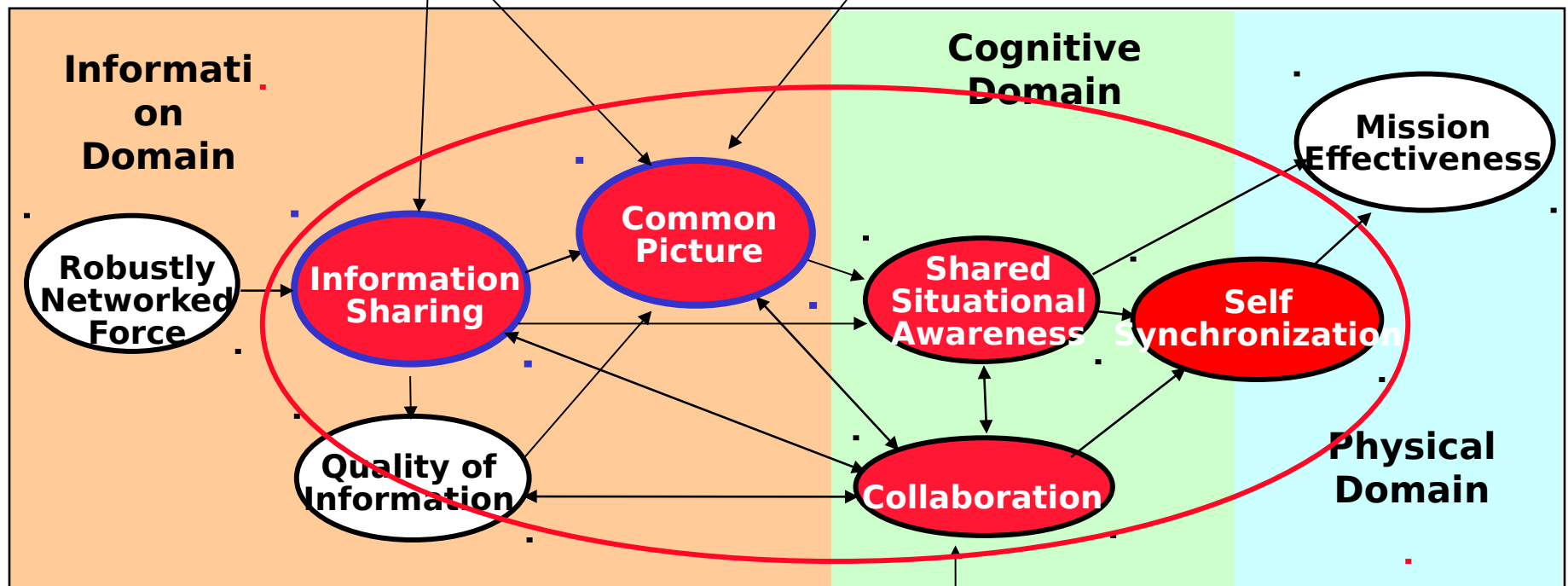 **- Special Forces C2**
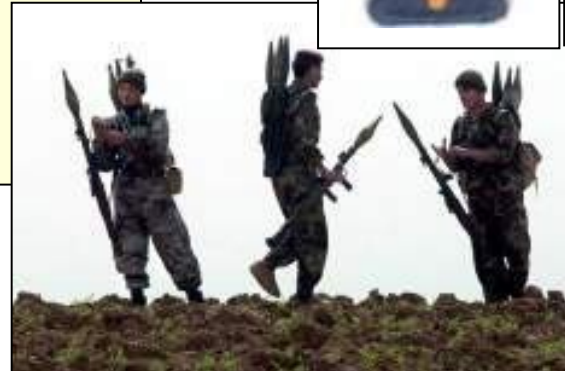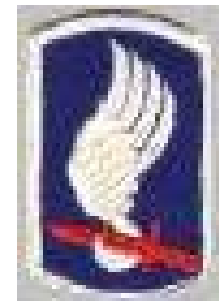
OIF: Southern Iraq

- **Controlled by V Corps / 1st MEF**

- **Traditional land battle w/heavy Joint & Coalition flavor**

    – **Very high operational tempo**

- **Networking of distributed ground force commanders via SATCOM**

- **Enhanced Relevant Common Operational Picture**

Ground Maneuver in OIF: Key NCW Relationships

FBCB2 / Blue Force Tracking **Joint COP**

Information Domain

Cognitive Domain

Physical Domain

Robustly Networked Force

Information Sharing

Common Picture

Shared Situational Awareness

Self Synchronization

Mission Effectiveness

Quality of Information

Collaboration

New Concepts & TTP

Defense Collaborative Tool Suite

FBCB2/BFT – Schematic Operation

SATCOM Hub/Switch

Enhanced Information System (EIS) and Communication Control Server

(CCS) compile messages and forward them to ground stations.

Via L-Band Transceiver

Via L-Band Transceiver/ Receiver

Radiant Mercury

Trusted Guard

SBU TO SECRET

FBCB2

FBCB2

5'/800m

5'/800m

GCCS Joint COP

GCCS-A/ABCS Army COP

Data Broker

SECRET NETWORK

PLGR

(x, y, z, t)
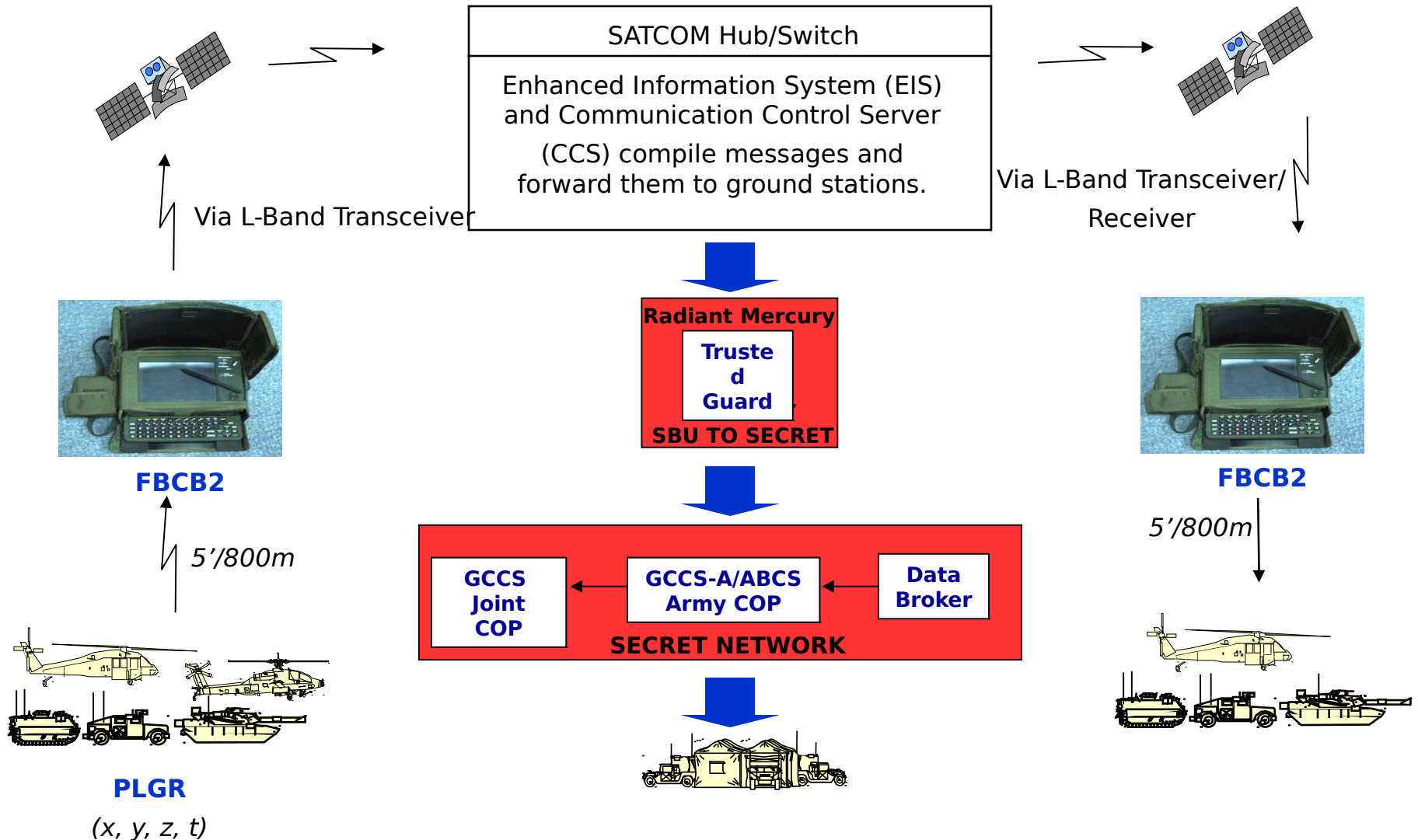
Ground Maneuver in OIF: Degree of Networking

Pentagon					
Joint Force Commander	***SIPRNET***				
Coalition Force Land Component Commander	***GCCS*** ***GCSS-A*** ***C2PC***			***UK 1st Armor Division***	***1st Marine Division***
V Corps / 1st MEF			***3rd ID FBCB2/ BFT***		
Division		***101st Airborne FBCB2/ BFT***		***FBCB2/ BFT***	***C2PC + 40 + BFT***
Brigade					
Battalion					
Company					
Platoon					

Command Center:
Coalition Forces Land Component Commander

OIF Blue COP 25 March 2003

3ID, V Corps

1 MARDIV, I MEF

101 AA, V Corps

1 UK DIV, I MEF

Aviation Platform

C2PC Picture with FBCB2-BFT generated icons.

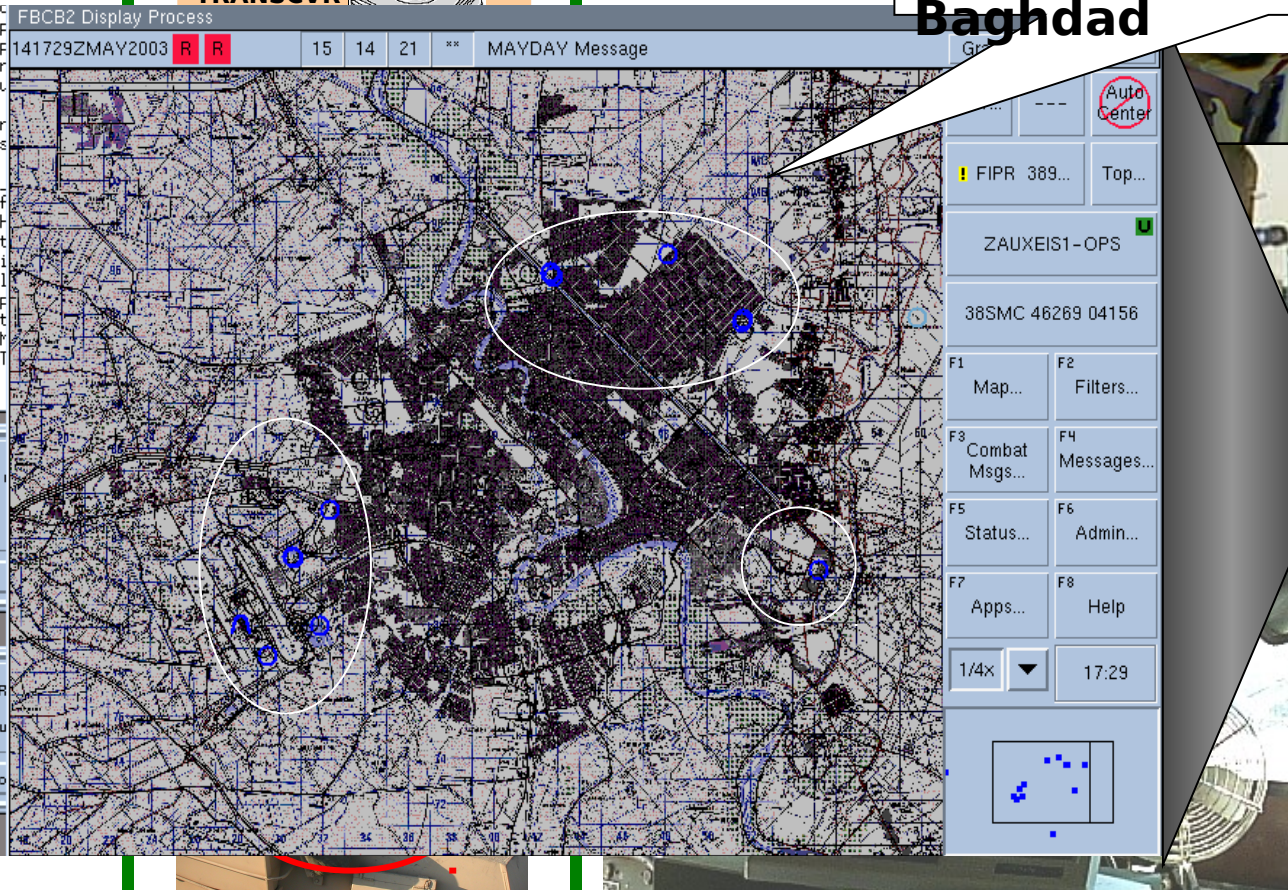# Seizure of Baghdad International Airport:
Common Tactical Picture Enabled by Blue Force Tracking
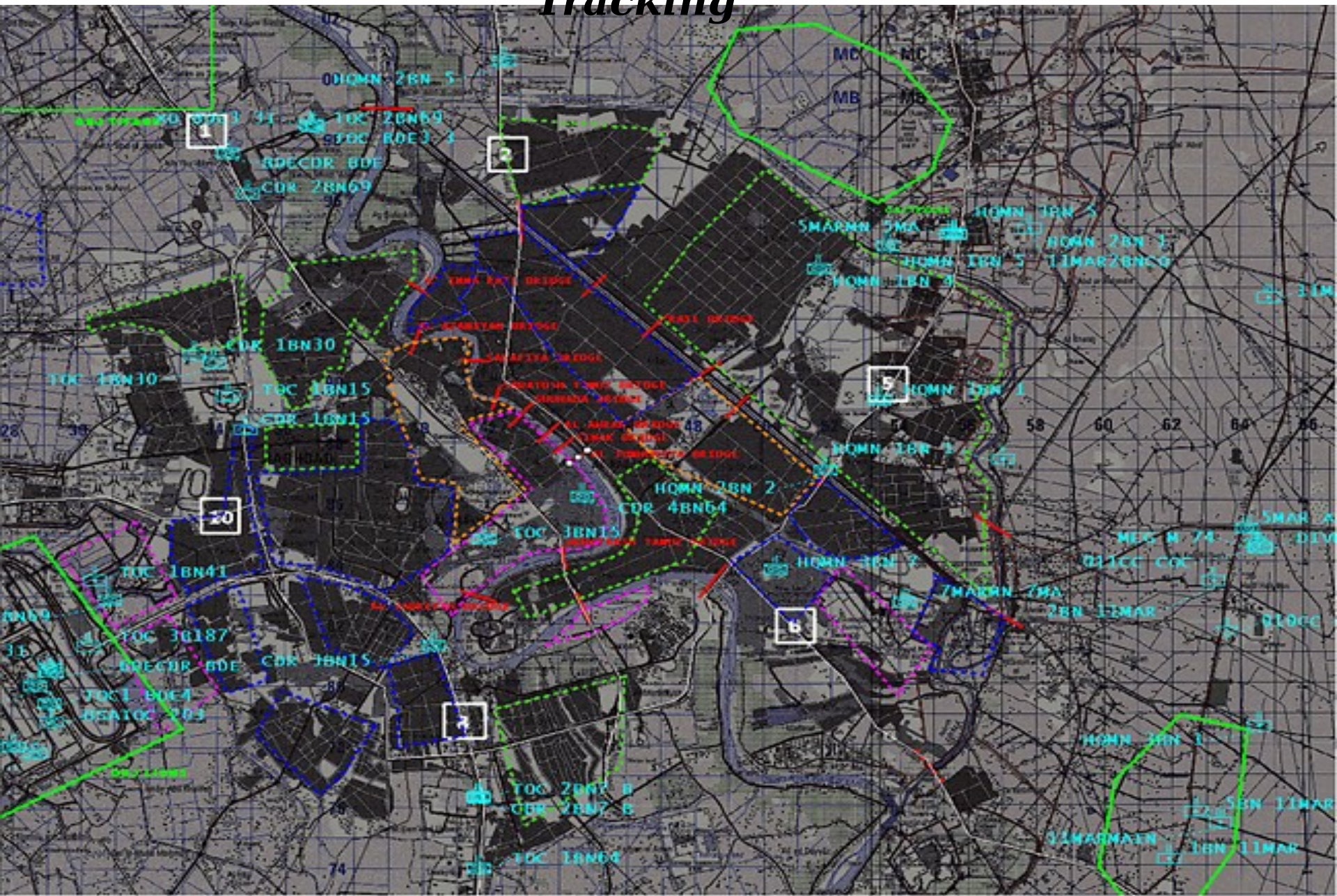
Blue Force Tracking – FBCB2

L-BAND TRANSCVR

Delivering *Situational Awareness* to forces supporting current stability operations in Baghdad

FBCB2 Display Process

141729ZMAY2003 R R | 15 | 14 | 21 | ** | MAYDAY Message

Auto Center

! FIPR 389...   Top...

ZAUXEIS1–OPS

38SMC 46269 04156

F1 Map...	F2 Filters...
F3 Combat Msgs...	F4 Messages...
F5 Status...	F6 Admin...
F7 Apps...	F8 Help

1/4x ▼   17:29

M1A1

"When my TF seized a key highway intersection south of Baghdad, I could see the company commander icons at each blocking position and I knew we had control of the objective."   **- LTC John Charlton, Cdr TF 1-15, 3 ID**

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"The bottom line is that FBCB2/BFT presented me with accurate information/knowledge as a Task Force Commander, and as a result I felt as though I was making better tactical decisions"

- LTC, Commander, 2/504 Parachute Infantry Regiment

"A soldier with absolutely no training on BFT could literally sit in front of it for 10 minutes, experiment, and have it figured out enough to get any information we needed off of it."

- 326th Engineering Battalion

"FBCB2 cleared the whole command net so we could focus on maneuver".

- CPT Tim Terese, 3 ID Main

"The single most successful C2 system fielded for OIF was the FBCB2-BFT system...BFT gave commanders situational understanding that was unprecedented in any

Office of Force Transformation

"I'm the lead company of the lead TF of the lead Brigade... There was nobody to my front.. I was able to look at my screen and see where friendly units were to my left, right, and to my rear. I was able to pass that information immediately down to my platoons so fratricide was basically eliminated"

- CPT Stewart James, Commander, A-2/69 AR, 3ID

"The whole squadron was in column on a highway. FBCB2/BFT displayed the locations of all blue forces. I knew the location of observed red, and was able to call for fire based on FBCB2/BFT knowledge"

- CPT, Commander, A Troop 3/7 Cavalry Regiment, 3rd Infantry Division

"Our counter battery radar picked up rounds through the Marine sector.   Prior firing counter batter, the Fire Officer checked the BFT screen and ascertained that a 3ID unit (Army) had crossed over into the Marine sector and as firing at the

Getting the Theory Right: Command and Control of a Networked Force
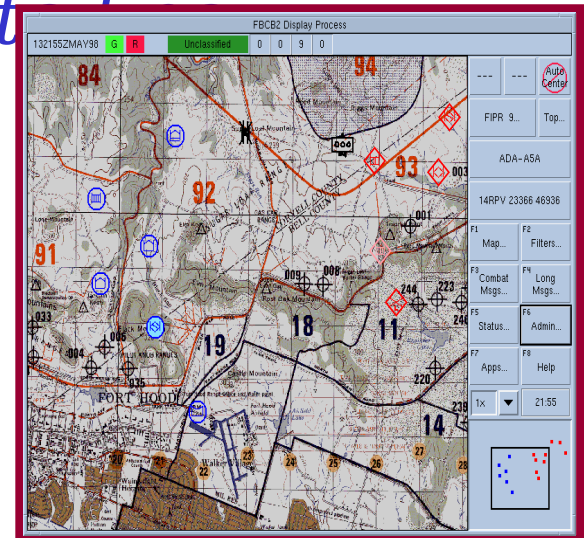
What's Different?

- **"Common" Operational Picture**
  - **Reduced "Fog" of War**
- **Shared Situational Awareness (SA)**
  - **Significantly increased SA for :**
    - Commander
    - Subordinate Commanders
    - Individual Warfighters
  - **Decreased "cognitive loading" in developing SA**
- **Command Intent**
  - **Increased shared situational understanding**
  - **Enhanced by capabilities for real-time collaboration**
- **Enhanced Speed of Decision Making**
- **Increased Tactical Agility**
- **Reduced Risk**

Increased Situational Awareness - Reduced Cognitive Loading

"... sitting on top of a moving turret, talking into the radio, trying to control the vehicle, getting a red flashlight, finding the map, looking at the map, figuring out where I am with the PLGR (GPS), back to the map...with FBCB2 I didn't have to do any of that to know where I was."

– CPT, 7th Cavalry Regiment

Getting the Theory Right: Command and Control of a Networked Force

What's Different?

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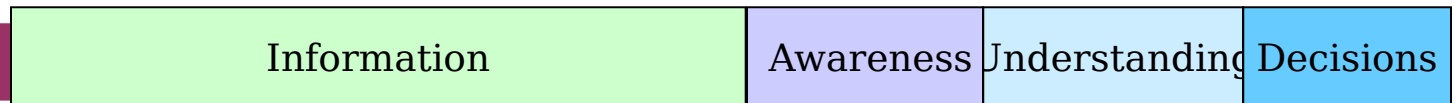# Network Centric Operations: Enhanced Speed of Decision Making
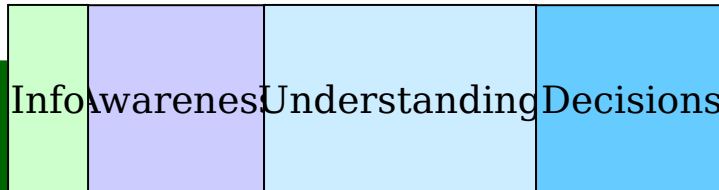
perior Ability to Observe – Orient - Decide - A

Decision Maker 1

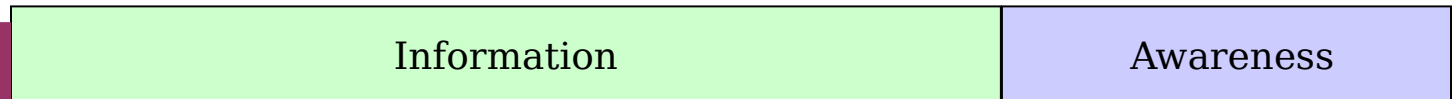| Voice Only | Information | Awareness | Understanding | Decisions |

| Voice + Data | Info | Awareness | Understanding | Decisions |

Decision Maker 2

| Voice Only | Information | Awareness |

| Voice + Data | Info | Awareness | Understanding | Decisions |
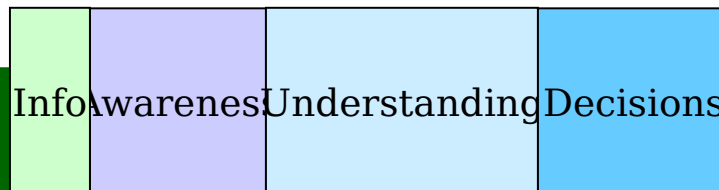
Time

Command and Control of a Networked Force
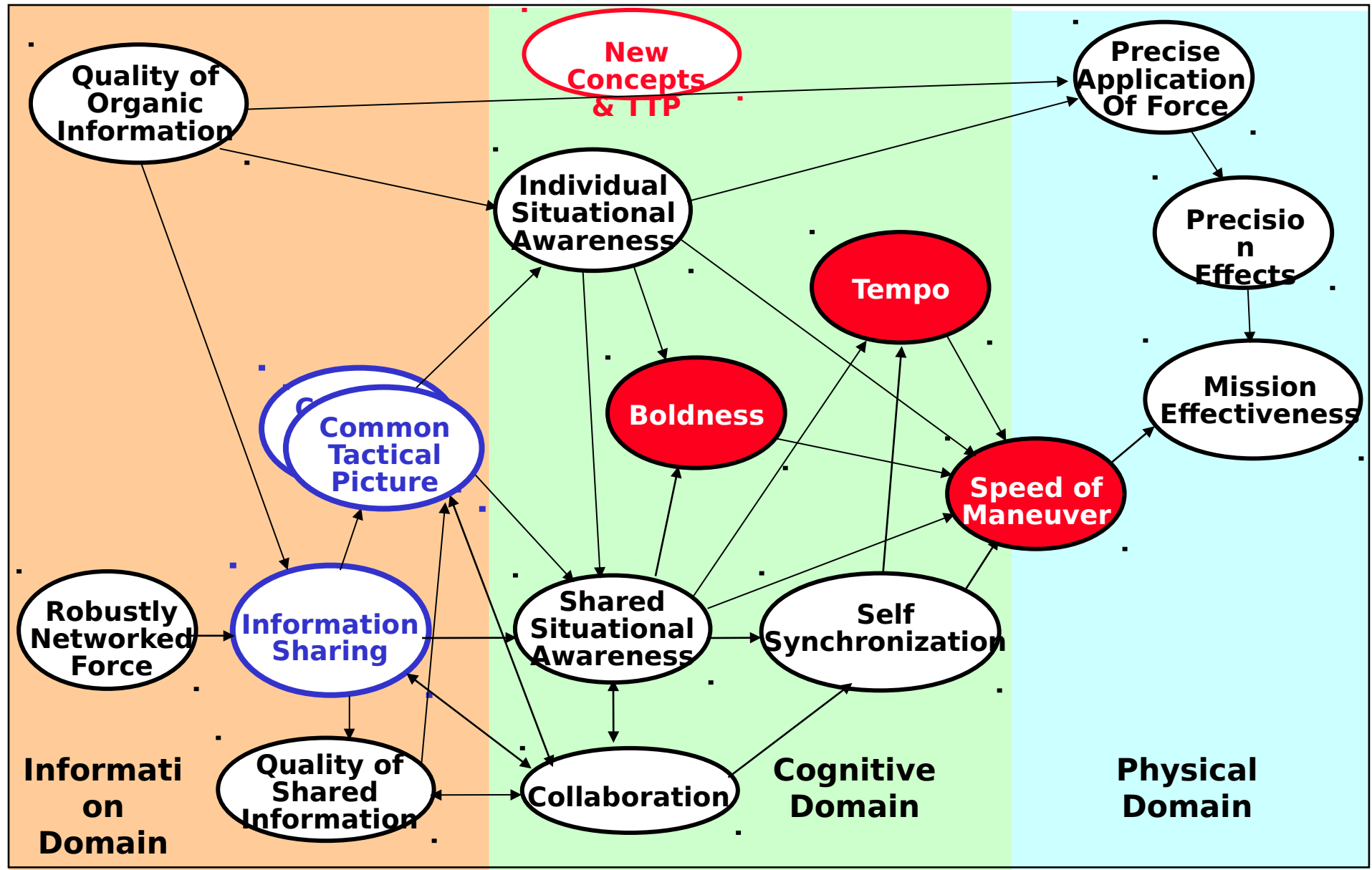
Implementing NCW:
A Perspective on Strategy

- Get the Theory Right
- Apply the Theory Enterprise Wide
- Accelerate Networking of the <u>Joint</u> Force
- Accelerate Deployment of Network-Centric Systems, Concepts,   and Capabilities
- Address Challenges of Allied & Coalition NCO
- Experiment with Network-Centric Concepts and Capabilities
- Develop Mature TTP for NCO
  - Service/Combined/Joint/Allied and Coalition

Network-Centric Warfare

Focus Areas for Current OFT Initiatives

Questions?